Release notes for ENDF/B Development n-040_Zr_096 evaluation

April 26, 2017

- `psyche` Warnings:

1. Gamma width not in agreement with PSYCHE's expectations
   FILE 2 / SECTION 151 / ISOTOPE MASS = 96. L = 1 / AT RESONANCE ENERGY 3.82050E+03 EV. THE GAMMA WIDTH 3.50000E-02 DEVIATES TOO MUCH FROM THE AVERAGE 1.47190E-01 (0): Gamma width

```
FILE  2
   SECTION 151
        ISOTOPE MASS =  96. L =  1
                 AT RESONANCE ENERGY  3.82050E+03 EV. THE GAMMA WIDTH  3.50000E-02 DEVIATES TOO MUCH FROM THE AV
```

2. Gamma width not in agreement with PSYCHE's expectations
   FILE 2 / SECTION 151 / ISOTOPE MASS = 96. L = 1 / AT RESONANCE ENERGY 9.00900E+03 EV. THE GAMMA WIDTH 4.70000E-02 DEVIATES TOO MUCH FROM THE AVERAGE 1.47190E-01 (0): Gamma width

```
FILE  2
   SECTION 151
        ISOTOPE MASS =  96. L =  1
                 AT RESONANCE ENERGY  9.00900E+03 EV. THE GAMMA WIDTH  4.70000E-02 DEVIATES TOO MUCH FROM THE AV
```

3. Gamma width not in agreement with PSYCHE's expectations
   FILE 2 / SECTION 151 / ISOTOPE MASS = 96. L = 1 / AT RESONANCE ENERGY 1.32860E+04 EV. THE GAMMA WIDTH 4.00000E-02 DEVIATES TOO MUCH FROM THE AVERAGE 1.47190E-01 (0): Gamma width

```
FILE  2
   SECTION 151
        ISOTOPE MASS =  96. L =  1
                 AT RESONANCE ENERGY  1.32860E+04 EV. THE GAMMA WIDTH  4.00000E-02 DEVIATES TOO MUCH FROM THE AV
```

4. Strength function in URR not in agreement with PSYCHE's expectations
   FILE 2 / SECTION 151 / ISOTOPE MASS = 96. L = 1 / STRENGTH FUNCTION IS 9.03194E-04 / STRENGTH FUNCTION 9.03194E-04 / LIES OUTSIDE LIMITS 1.00000E-04 TO 8.00000E-04 (0): URR str. ftn.

```
FILE  2
   SECTION 151
        ISOTOPE MASS =  96. L =  1
                 STRENGTH FUNCTION IS  9.03194E-04
                              STRENGTH FUNCTION 9.03194E-04
... [1 more lines]
```

5. Level density in URR not in agreement with PSYCHE's expectations
   FILE 2 / SECTION 151 / ENERGY = 9.60000E+04. STRENGTH FUNCTION IS 5.11000E-04 / ENERGY = 9.60000E+04. STRENGTH FUNCTION IS 5.11000E-04 / DENSITY 6.63287E+03 SHOULD BE 5.94098E+03 (0): URR dens. (a)

```
FILE  2
   SECTION 151
         ENERGY =  9.60000E+04. STRENGTH FUNCTION IS  5.11000E-04
                  ENERGY =  9.60000E+04. STRENGTH FUNCTION IS  5.11000E-04
                               DENSITY  6.63287E+03 SHOULD BE  5.94098E+03
```

6. Level density in URR not in agreement with PSYCHE's expectations
FILE 2 / SECTION 151 / ENERGY = 1.00000E+05. STRENGTH FUNCTION IS 5.11000E-04 / DENSITY 6.59783E+03 SHOULD BE 5.90960E+03 (0): URR dens. (a)

```
FILE  2
   SECTION 151
            ENERGY =  1.00000E+05. STRENGTH FUNCTION IS  5.11000E-04
                          DENSITY  6.59783E+03 SHOULD BE  5.90960E+03
```

7. Level density in URR not in agreement with PSYCHE's expectations
FILE 2 / SECTION 151 / ENERGY = 2.00000E+05. STRENGTH FUNCTION IS 5.11000E-04 / DENSITY 5.78313E+03 SHOULD BE 5.17988E+03 (0): URR dens. (a)

```
FILE  2
   SECTION 151
            ENERGY =  2.00000E+05. STRENGTH FUNCTION IS  5.11000E-04
                          DENSITY  5.78313E+03 SHOULD BE  5.17988E+03
```

8. Level density in URR not in agreement with PSYCHE's expectations
FILE 2 / SECTION 151 / ENERGY = 3.00000E+05. STRENGTH FUNCTION IS 5.11000E-04 / DENSITY 5.07481E+03 SHOULD BE 4.54545E+03 (0): URR dens. (a)

```
FILE  2
   SECTION 151
            ENERGY =  3.00000E+05. STRENGTH FUNCTION IS  5.11000E-04
                          DENSITY  5.07481E+03 SHOULD BE  4.54545E+03
```

9. Level density in URR not in agreement with PSYCHE's expectations
FILE 2 / SECTION 151 / ENERGY = 4.00000E+05. STRENGTH FUNCTION IS 5.11000E-04 / DENSITY 4.45819E+03 SHOULD BE 3.99314E+03 (0): URR dens. (a)

```
FILE  2
   SECTION 151
            ENERGY =  4.00000E+05. STRENGTH FUNCTION IS  5.11000E-04
                          DENSITY  4.45819E+03 SHOULD BE  3.99314E+03
```

10. Level density in URR not in agreement with PSYCHE's expectations
FILE 2 / SECTION 151 / ENERGY = 5.00000E+05. STRENGTH FUNCTION IS 5.11000E-04 / DENSITY 3.92072E+03 SHOULD BE 3.51174E+03 (0): URR dens. (a)

```
FILE  2
   SECTION 151
            ENERGY =  5.00000E+05. STRENGTH FUNCTION IS  5.11000E-04
                          DENSITY  3.92072E+03 SHOULD BE  3.51174E+03
```

11. Level density in URR not in agreement with PSYCHE's expectations
FILE 2 / SECTION 151 / ENERGY = 6.00000E+05. STRENGTH FUNCTION IS 5.11000E-04 / DENSITY 3.45167E+03 SHOULD BE 3.09162E+03 (0): URR dens. (a)

```
FILE  2
   SECTION 151
            ENERGY =  6.00000E+05. STRENGTH FUNCTION IS  5.11000E-04
                          DENSITY  3.45167E+03 SHOULD BE  3.09162E+03
```

12. Level density in URR not in agreement with PSYCHE's expectations
FILE 2 / SECTION 151 / ENERGY = 7.00000E+05. STRENGTH FUNCTION IS 5.11000E-04 / DENSITY 3.04186E+03 SHOULD BE 2.72456E+03 (0): URR dens. (a)

```
FILE  2
   SECTION 151
            ENERGY =  7.00000E+05. STRENGTH FUNCTION IS  5.11000E-04
                          DENSITY  3.04186E+03 SHOULD BE  2.72456E+03
```

13. Level density in URR not in agreement with PSYCHE's expectations
FILE 2 / SECTION 151 / ENERGY = 8.00000E+05. STRENGTH FUNCTION IS 5.11000E-04 / DENSITY 2.68339E+03 SHOULD BE 2.40348E+03 (0): URR dens. (a)

```
FILE  2
   SECTION 151
            ENERGY =  8.00000E+05. STRENGTH FUNCTION IS  5.11000E-04
                          DENSITY  2.68339E+03 SHOULD BE  2.40348E+03
```

14. Level density in URR not in agreement with PSYCHE's expectations
FILE 2 / SECTION 151 / ENERGY = 9.00000E+05. STRENGTH FUNCTION IS 5.11000E-04 / DENSITY 2.36947E+03 SHOULD BE 2.12230E+03 (0): URR dens. (a)

```
FILE  2
   SECTION 151
            ENERGY =  9.00000E+05. STRENGTH FUNCTION IS  5.11000E-04
                          DENSITY  2.36947E+03 SHOULD BE  2.12230E+03
```

15. Level density in URR not in agreement with PSYCHE's expectations
FILE 2 / SECTION 151 / ENERGY = 1.00000E+06. STRENGTH FUNCTION IS 5.11000E-04 / DENSITY 2.09427E+03 SHOULD BE 1.87581E+03 (0): URR dens. (a)

```
FILE  2
   SECTION 151
            ENERGY =  1.00000E+06. STRENGTH FUNCTION IS  5.11000E-04
                          DENSITY  2.09427E+03 SHOULD BE  1.87581E+03
```

16. Level density in URR not in agreement with PSYCHE's expectations
FILE 2 / SECTION 151 / ENERGY = 1.10000E+06. STRENGTH FUNCTION IS 5.11000E-04 / DENSITY 1.85276E+03 SHOULD BE 1.65949E+03 (0): URR dens. (a)

```
FILE  2
   SECTION 151
            ENERGY =  1.10000E+06. STRENGTH FUNCTION IS  5.11000E-04
                          DENSITY  1.85276E+03 SHOULD BE  1.65949E+03
```

17. Level density in URR not in agreement with PSYCHE's expectations
FILE 2 / SECTION 151 / ENERGY = 1.20000E+06. STRENGTH FUNCTION IS 5.11000E-04 / DENSITY 1.64059E+03 SHOULD BE 1.46945E+03 (0): URR dens. (a)

```
FILE  2
   SECTION 151
            ENERGY =  1.20000E+06. STRENGTH FUNCTION IS  5.11000E-04
                          DENSITY  1.64059E+03 SHOULD BE  1.46945E+03
```

18. Level density in URR not in agreement with PSYCHE's expectations
FILE 2 / SECTION 151 / ENERGY = 1.30000E+06. STRENGTH FUNCTION IS 5.11000E-04 / DENSITY 1.45400E+03 SHOULD BE 1.30233E+03 (0): URR dens. (a)

```
FILE  2
   SECTION 151
            ENERGY =  1.30000E+06. STRENGTH FUNCTION IS  5.11000E-04
                         DENSITY  1.45400E+03 SHOULD BE  1.30233E+03
```

19. Level density in URR not in agreement with PSYCHE's expectations
FILE 2 / SECTION 151 / ENERGY = 1.40000E+06. STRENGTH FUNCTION IS 5.11000E-04 / DENSITY 1.28976E+03 SHOULD BE 1.15522E+03 (0): URR dens. (a)

```
FILE  2
   SECTION 151
            ENERGY =  1.40000E+06. STRENGTH FUNCTION IS  5.11000E-04
                         DENSITY  1.28976E+03 SHOULD BE  1.15522E+03
```

20. Level density in URR not in agreement with PSYCHE's expectations
FILE 2 / SECTION 151 / ENERGY = 1.50000E+06. STRENGTH FUNCTION IS 5.11000E-04 / DENSITY 1.14504E+03 SHOULD BE 1.02559E+03 (0): URR dens. (a)

```
FILE  2
   SECTION 151
            ENERGY =  1.50000E+06. STRENGTH FUNCTION IS  5.11000E-04
                         DENSITY  1.14504E+03 SHOULD BE  1.02559E+03
```

21. Level density in URR not in agreement with PSYCHE's expectations
FILE 2 / SECTION 151 / ENERGY = 1.59828E+06. STRENGTH FUNCTION IS 5.11000E-04 / DENSITY 1.01946E+03 SHOULD BE 9.13121E+02 (0): URR dens. (a)

```
FILE  2
   SECTION 151
            ENERGY =  1.59828E+06. STRENGTH FUNCTION IS  5.11000E-04
                         DENSITY  1.01946E+03 SHOULD BE  9.13121E+02
```

22. Level density in URR not in agreement with PSYCHE's expectations
FILE 2 / SECTION 151 / ENERGY = 9.60000E+04. STRENGTH FUNCTION IS 5.00000E-05 / ENERGY = 9.60000E+04. STRENGTH FUNCTION IS 5.00000E-05 / DENSITY 5.31311E+03 SHOULD BE 4.42191E+03 (0): URR dens. (a)

```
FILE  2
   SECTION 151
         ENERGY =  9.60000E+04. STRENGTH FUNCTION IS  5.00000E-05
                  ENERGY =  9.60000E+04. STRENGTH FUNCTION IS  5.00000E-05
                               DENSITY  5.31311E+03 SHOULD BE  4.42191E+03
```

23. Level density in URR not in agreement with PSYCHE's expectations
FILE 2 / SECTION 151 / ENERGY = 1.00000E+05. STRENGTH FUNCTION IS 5.00000E-05 / DENSITY 5.28505E+03 SHOULD BE 4.39855E+03 (0): URR dens. (a)

```
FILE  2
   SECTION 151
            ENERGY =  1.00000E+05. STRENGTH FUNCTION IS  5.00000E-05
                         DENSITY  5.28505E+03 SHOULD BE  4.39855E+03
```

24. Level density in URR not in agreement with PSYCHE's expectations
FILE 2 / SECTION 151 / ENERGY = 2.00000E+05. STRENGTH FUNCTION IS 5.00000E-05 / DENSITY 4.63245E+03 SHOULD BE 3.85542E+03 (0): URR dens. (a)

```
FILE  2
   SECTION 151
            ENERGY =  2.00000E+05. STRENGTH FUNCTION IS  5.00000E-05
                          DENSITY  4.63245E+03 SHOULD BE  3.85542E+03
```

25. Level density in URR not in agreement with PSYCHE's expectations
FILE 2 / SECTION 151 / ENERGY = 3.00000E+05. STRENGTH FUNCTION IS 5.00000E-05 / DENSITY 4.06507E+03 SHOULD BE 3.38321E+03 (0): URR dens. (a)

```
FILE  2
   SECTION 151
            ENERGY =  3.00000E+05. STRENGTH FUNCTION IS  5.00000E-05
                          DENSITY  4.06507E+03 SHOULD BE  3.38321E+03
```

26. Level density in URR not in agreement with PSYCHE's expectations
FILE 2 / SECTION 151 / ENERGY = 4.00000E+05. STRENGTH FUNCTION IS 5.00000E-05 / DENSITY 3.57113E+03 SHOULD BE 2.97212E+03 (0): URR dens. (a)

```
FILE  2
   SECTION 151
            ENERGY =  4.00000E+05. STRENGTH FUNCTION IS  5.00000E-05
                          DENSITY  3.57113E+03 SHOULD BE  2.97212E+03
```

27. Level density in URR not in agreement with PSYCHE's expectations
FILE 2 / SECTION 151 / ENERGY = 5.00000E+05. STRENGTH FUNCTION IS 5.00000E-05 / DENSITY 3.14060E+03 SHOULD BE 2.61381E+03 (0): URR dens. (a)

```
FILE  2
   SECTION 151
            ENERGY =  5.00000E+05. STRENGTH FUNCTION IS  5.00000E-05
                          DENSITY  3.14060E+03 SHOULD BE  2.61381E+03
```

28. Level density in URR not in agreement with PSYCHE's expectations
FILE 2 / SECTION 151 / ENERGY = 6.00000E+05. STRENGTH FUNCTION IS 5.00000E-05 / DENSITY 2.76489E+03 SHOULD BE 2.30111E+03 (0): URR dens. (a)

```
FILE  2
   SECTION 151
            ENERGY =  6.00000E+05. STRENGTH FUNCTION IS  5.00000E-05
                          DENSITY  2.76489E+03 SHOULD BE  2.30111E+03
```

29. Level density in URR not in agreement with PSYCHE's expectations
FILE 2 / SECTION 151 / ENERGY = 7.00000E+05. STRENGTH FUNCTION IS 5.00000E-05 / DENSITY 2.43662E+03 SHOULD BE 2.02791E+03 (0): URR dens. (a)

```
FILE  2
   SECTION 151
            ENERGY =  7.00000E+05. STRENGTH FUNCTION IS  5.00000E-05
                          DENSITY  2.43662E+03 SHOULD BE  2.02791E+03
```

30. Level density in URR not in agreement with PSYCHE's expectations
FILE 2 / SECTION 151 / ENERGY = 8.00000E+05. STRENGTH FUNCTION IS 5.00000E-05 / DENSITY 2.14947E+03 SHOULD BE 1.78893E+03 (0): URR dens. (a)

```
FILE  2
   SECTION 151
            ENERGY =  8.00000E+05. STRENGTH FUNCTION IS  5.00000E-05
                          DENSITY  2.14947E+03 SHOULD BE  1.78893E+03
```

31. Level density in URR not in agreement with PSYCHE's expectations
FILE 2 / SECTION 151 / ENERGY = 9.00000E+05. STRENGTH FUNCTION IS 5.00000E-05 / DENSITY 1.89801E+03 SHOULD BE 1.57965E+03 (0): URR dens. (a)

```
FILE  2
   SECTION 151
            ENERGY =  9.00000E+05. STRENGTH FUNCTION IS  5.00000E-05
                          DENSITY  1.89801E+03 SHOULD BE  1.57965E+03
```

32. Level density in URR not in agreement with PSYCHE's expectations
FILE 2 / SECTION 151 / ENERGY = 1.00000E+06. STRENGTH FUNCTION IS 5.00000E-05 / DENSITY 1.67757E+03 SHOULD BE 1.39618E+03 (0): URR dens. (a)

```
FILE  2
   SECTION 151
            ENERGY =  1.00000E+06. STRENGTH FUNCTION IS  5.00000E-05
                          DENSITY  1.67757E+03 SHOULD BE  1.39618E+03
```

33. Level density in URR not in agreement with PSYCHE's expectations
FILE 2 / SECTION 151 / ENERGY = 1.10000E+06. STRENGTH FUNCTION IS 5.00000E-05 / DENSITY 1.48411E+03 SHOULD BE 1.23517E+03 (0): URR dens. (a)

```
FILE  2
   SECTION 151
            ENERGY =  1.10000E+06. STRENGTH FUNCTION IS  5.00000E-05
                          DENSITY  1.48411E+03 SHOULD BE  1.23517E+03
```

34. Level density in URR not in agreement with PSYCHE's expectations
FILE 2 / SECTION 151 / ENERGY = 1.20000E+06. STRENGTH FUNCTION IS 5.00000E-05 / DENSITY 1.31416E+03 SHOULD BE 1.09373E+03 (0): URR dens. (a)

```
FILE  2
   SECTION 151
            ENERGY =  1.20000E+06. STRENGTH FUNCTION IS  5.00000E-05
                          DENSITY  1.31416E+03 SHOULD BE  1.09373E+03
```

35. Level density in URR not in agreement with PSYCHE's expectations
FILE 2 / SECTION 151 / ENERGY = 1.30000E+06. STRENGTH FUNCTION IS 5.00000E-05 / DENSITY 1.16470E+03 SHOULD BE 9.69337E+02 (0): URR dens. (a)

```
FILE  2
   SECTION 151
            ENERGY =  1.30000E+06. STRENGTH FUNCTION IS  5.00000E-05
                          DENSITY  1.16470E+03 SHOULD BE  9.69337E+02
```

36. Level density in URR not in agreement with PSYCHE's expectations
FILE 2 / SECTION 151 / ENERGY = 1.40000E+06. STRENGTH FUNCTION IS 5.00000E-05 / DENSITY 1.03313E+03 SHOULD BE 8.59838E+02 (0): URR dens. (a)

```
FILE  2
   SECTION 151
            ENERGY =  1.40000E+06. STRENGTH FUNCTION IS  5.00000E-05
                          DENSITY  1.03313E+03 SHOULD BE  8.59838E+02
```

37. Level density in URR not in agreement with PSYCHE's expectations
FILE 2 / SECTION 151 / ENERGY = 1.50000E+06. STRENGTH FUNCTION IS 5.00000E-05 / DENSITY 9.17207E+02 SHOULD BE 7.63358E+02 (0): URR dens. (a)

```
FILE  2
   SECTION 151
            ENERGY =  1.50000E+06. STRENGTH FUNCTION IS  5.00000E-05
                          DENSITY  9.17207E+02 SHOULD BE  7.63358E+02
```

38. Level density in URR not in agreement with PSYCHE's expectations
FILE 2 / SECTION 151 / ENERGY = 1.59828E+06. STRENGTH FUNCTION IS 5.00000E-05 / DENSITY 8.16619E+02 SHOULD BE 6.79643E+02 (0): URR dens. (a)

```
FILE  2
   SECTION 151
            ENERGY =  1.59828E+06. STRENGTH FUNCTION IS  5.00000E-05
                          DENSITY  8.16619E+02 SHOULD BE  6.79643E+02
```

39. Non-threshold reaction with Q value differing from PSYCHE's expectations
FILE 3 / SECTION 102 / THE CALCULATED Q 5.29062E+06 DISSAGREES WITH THE GIVEN Q 5.57900E+06 (0): Iffy Q

```
FILE  3
   SECTION 102
            THE CALCULATED Q  5.29062E+06 DISSAGREES WITH THE GIVEN Q  5.57900E+06
```

- `fudge-4.0` Warnings:

1. Missing a channel with a particular angular momenta combination
resonances / resolved / MultiLevel_BreitWigner (Error # 0): missingResonanceChannel

```
WARNING: Missing a channel with angular momenta combination L = 0, J = 1.5 and S = 1.5 for "capture"
WARNING: Missing a channel with angular momenta combination L = 1, J = 0.5 and S = 1.5 for "capture"
WARNING: Missing a channel with angular momenta combination L = 1, J = 1.5 and S = 1.5 for "capture"
WARNING: Missing a channel with angular momenta combination L = 1, J = 2.5 and S = 1.5 for "capture"
```

2. Potential scattering hasn't converted, you need more L's!
resonances / resolved (Error # 1): potentialScatteringNotConverged

```
WARNING: Potential scattering hasn't converged by L=1 at E=96000.0 eV, xs[1]/xs[0]=0.317092156618% > 0.1%
```

3. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.
Section 1 (n + Zr96): / Form 'eval': / Component 1 (Error # 0): Condition num.

```
WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small
```

4. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.
   Section 2 ((z,n)): / Form 'eval': (Error # 0): Condition num.

   ```
   WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small
   ```

5. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.
   Section 3 (n[multiplicity:'2'] + Zr95 + gamma): / Form 'eval': (Error # 0): Condition num.

   ```
   WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small
   ```

6. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.
   Section 4 (Zr97 + gamma): / Form 'eval': / Component 1 (Error # 0): Condition num.

   ```
   WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small
   ```

- `fudge-4.0` Errors:

1. Calculated and tabulated Q values disagree.
   reaction label 7: n[multiplicity:'2'] + Zr95 + gamma (Error # 0): Q mismatch

   ```
   WARNING: Calculated and tabulated Q-values disagree: -7833121.185195923 eV vs -7.854e6 eV!
   ```

2. Calculated and tabulated Q values disagree.
   reaction label 8: n[multiplicity:'3'] + Zr94 + gamma (Error # 0): Q mismatch

   ```
   WARNING: Calculated and tabulated Q-values disagree: -14295368.34591675 eV vs -1.4317e7 eV!
   ```

3. Calculated and tabulated Q values disagree.
   reaction label 9: n + H1 + Y95 + gamma (Error # 0): Q mismatch

   ```
   WARNING: Calculated and tabulated Q-values disagree: -11501023.00512695 eV vs -9.302e6 eV!
   ```

4. Calculated and tabulated Q values disagree.
   reaction label 10: H1 + Y96 (Error # 0): Q mismatch

   ```
   WARNING: Calculated and tabulated Q-values disagree: -6290064.838623047 eV vs -6.318e6 eV!
   ```

5. Calculated and tabulated Q values disagree.
   reaction label 11: H1 + Y96_e1 (Error # 0): Q mismatch

   ```
   WARNING: Calculated and tabulated Q-values disagree: -6412364.838623047 eV vs -6.4403e6 eV!
   ```

6. Calculated and tabulated Q values disagree.
   reaction label 12: H1 + Y96_e2 (Error # 0): Q mismatch

   ```
   WARNING: Calculated and tabulated Q-values disagree: -6942354.838623047 eV vs -6970290. eV!
   ```

7. Calculated and tabulated Q values disagree.
   reaction label 13: H1 + (Y96_c -> Y96 + gamma) (Error # 0): Q mismatch

   ```
   WARNING: Calculated and tabulated Q-values disagree: -6942354.838623047 eV vs -6970290. eV!
   ```

8. Calculated and tabulated Q values disagree.
reaction label 14: He4 + Sr93 (Error # 0): Q mismatch

```
WARNING: Calculated and tabulated Q-values disagree: 312673.95362854 eV vs 2.93e5 eV!
```

9. Calculated and tabulated Q values disagree.
reaction label 15: He4 + Sr93_e1 (Error # 0): Q mismatch

```
WARNING: Calculated and tabulated Q-values disagree: 99243.95362854004 eV vs 79570. eV!
```

10. Calculated and tabulated Q values disagree.
reaction label 16: He4 + Sr93_e2 (Error # 0): Q mismatch

```
WARNING: Calculated and tabulated Q-values disagree: -119926.04637146 eV vs -1.396e5 eV!
```

11. Calculated and tabulated Q values disagree.
reaction label 17: He4 + Sr93_e3 (Error # 0): Q mismatch

```
WARNING: Calculated and tabulated Q-values disagree: -673446.04637146 eV vs -693120. eV!
```

12. Calculated and tabulated Q values disagree.
reaction label 18: He4 + Sr93_e4 (Error # 0): Q mismatch

```
WARNING: Calculated and tabulated Q-values disagree: -829876.04637146 eV vs -849550. eV!
```

13. Calculated and tabulated Q values disagree.
reaction label 19: He4 + Sr93_e5 (Error # 0): Q mismatch

```
WARNING: Calculated and tabulated Q-values disagree: -835526.04637146 eV vs -8.552e5 eV!
```

14. Calculated and tabulated Q values disagree.
reaction label 20: He4 + Sr93_e6 (Error # 0): Q mismatch

```
WARNING: Calculated and tabulated Q-values disagree: -925566.04637146 eV vs -945240. eV!
```

15. Calculated and tabulated Q values disagree.
reaction label 21: He4 + Sr93_e7 (Error # 0): Q mismatch

```
WARNING: Calculated and tabulated Q-values disagree: -1072626.04637146 eV vs -1.0923e6 eV!
```

16. Calculated and tabulated Q values disagree.
reaction label 22: He4 + Sr93_e8 (Error # 0): Q mismatch

```
WARNING: Calculated and tabulated Q-values disagree: -1216646.04637146 eV vs -1236320. eV!
```

17. Calculated and tabulated Q values disagree.
reaction label 23: He4 + Sr93_e9 (Error # 0): Q mismatch

```
WARNING: Calculated and tabulated Q-values disagree: -1250276.04637146 eV vs -1269950. eV!
```

18. Calculated and tabulated Q values disagree.
reaction label 24: He4 + (Sr93_c ->Sr93 + gamma) (Error # 0): Q mismatch

```
WARNING: Calculated and tabulated Q-values disagree: -1250276.04637146 eV vs -1269950. eV!
```

19. Calculated and tabulated Q values disagree.
reaction label 25: Zr97 + gamma (Error # 0): Q mismatch

```
WARNING: Calculated and tabulated Q-values disagree: 5598391.866531372 eV vs 5.579e6 eV!
```

20. Calculated and tabulated Q values disagree.
reaction label 26: n + He4 + Sr92 + gamma (Error # 0): Q mismatch

```
WARNING: Calculated and tabulated Q-values disagree: -4975547.918106079 eV vs -4.991e6 eV!
```

21. Calculated and tabulated Q values disagree.
reaction label 27: n[multiplicity:'2'] + He4 + Sr91 + gamma (Error # 0): Q mismatch

```
WARNING: Calculated and tabulated Q-values disagree: -12269288.58242798 eV vs -1.2298e7 eV!
```

22. Calculated and tabulated Q values disagree.
reaction label 28: H2 + (Y95_s -> Y95 + gamma) (Error # 0): Q mismatch

```
WARNING: Calculated and tabulated Q-values disagree: -9280830.002441406 eV vs -9.302e6 eV!
```

23. Calculated and tabulated Q values disagree.
reaction label 29: H3 + (Y94_s -> Y94 + gamma) (Error # 0): Q mismatch

```
WARNING: Calculated and tabulated Q-values disagree: -9953211.217758179 eV vs -9.97e6 eV!
```

- `njoy2012` Warnings:

1. Generic warning message
unresr...calculation of unresolved resonance cross sections (0): Warning

```
 ---message from rdunf2---unresolved-smooth overlap above e=  1.0000E+06
 energy =  9.6000E+04
```

2. Recoil is not given, so one-particle recoil approximation used.
heatr...prompt kerma (0): HEATR/hinit (4)

```
 ---message from hinit---mf6, mt 16 does not give recoil za= 40095
                         one-particle recoil approx. used.
```

3. Recoil is not given, so one-particle recoil approximation used.
heatr...prompt kerma (1): HEATR/hinit (4)

```
 ---message from hinit---mf6, mt 17 does not give recoil za= 40094
                         one-particle recoil approx. used.
```

4. Recoil is not given, so one-particle recoil approximation used.
heatr...prompt kerma (2): HEATR/hinit (4)

```
 ---message from hinit---mf6, mt 22 does not give recoil za= 38092
                         one-particle recoil approx. used.
```

5. Recoil is not given, so one-particle recoil approximation used.
heatr...prompt kerma (3): HEATR/hinit (4)

```
 ---message from hinit---mf6, mt 24 does not give recoil za= 38091
                         one-particle recoil approx. used.
```

6. Recoil is not given, so one-particle recoil approximation used.
heatr...prompt kerma (4): HEATR/hinit (4)

```
---message from hinit---mf6, mt 28 does not give recoil za= 39095
                        one-particle recoil approx. used.
```

7. Recoil is not given, so one-particle recoil approximation used.
heatr...prompt kerma (5): HEATR/hinit (4)

```
---message from hinit---mf6, mt 91 does not give recoil za= 40096
                        one-particle recoil approx. used.
```

8. Recoil is not given, so one-particle recoil approximation used.
heatr...prompt kerma (6): HEATR/hinit (4)

```
---message from hinit---mf6, mt102 does not give recoil za= 40097
                        photon momentum recoil used.
```

9. Recoil is not given, so one-particle recoil approximation used.
heatr...prompt kerma (7): HEATR/hinit (4)

```
---message from hinit---mf6, mt104 does not give recoil za= 39095
                        one-particle recoil approx. used.
```

10. Recoil is not given, so one-particle recoil approximation used.
heatr...prompt kerma (8): HEATR/hinit (4)

```
---message from hinit---mf6, mt105 does not give recoil za= 39094
                        one-particle recoil approx. used.
```

11. Recoil is not given, so one-particle recoil approximation used.
heatr...prompt kerma (9): HEATR/hinit (4)

```
---message from hinit---mf6, mt649 does not give recoil za= 39096
                        one-particle recoil approx. used.
```

12. Recoil is not given, so one-particle recoil approximation used.
heatr...prompt kerma (10): HEATR/hinit (4)

```
---message from hinit---mf6, mt849 does not give recoil za= 38093
                        one-particle recoil approx. used.
```